

DRAFT REPORT

**ECONOMIC ANALYSIS
OF CRITICAL HABITAT DESIGNATION
FOR THE BAY CHECKERSPOT BUTTERFLY**

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PREFACE

1. This report was prepared for the U.S. Fish and Wildlife Service (FWS or the Service) by Bioeconomics, Incorporated, under subcontract to Industrial Economics, Incorporated to assess the economic impacts that may result from designation of critical habitat for the bay checkerspot butterfly. Section 4(b)(2) of the Endangered Species Act (Act) requires the Service to base critical habitat proposals upon the best scientific and commercial data available, after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. This report does not address any economic impacts associated with the listing of the species. The analysis only addresses those incremental economic costs and benefits potentially resulting from the designation of critical habitat. The Act is clear that listing decisions be based solely on the best available scientific and commercial data available (section 4(b) of the Act). Congress also made it clear in the Conference Report for passage of the 1982 amendments to the Act that “economic considerations have no relevance to determinations regarding the status of species ...” Thus, the Service can reasonably conclude that the Act requires them to only consider the incremental economic impacts of the critical habitat designation above those of listing and other laws.
2. Bioeconomics, Inc. worked closely with the Service personnel to ensure that potential Federal nexuses as well as current and future land uses were appropriately identified, and to begin assessing whether or not the designation of critical habitat would have any net economic effect in the region containing the proposed critical habitat designations. Identification of these land use/Federal-agency actions provided Bioeconomics with a basis for evaluating the incremental economic impacts due to critical habitat designation for the butterfly.
3. Section 7 of the Act authorizes the Service to make a determination whether a Federal-agency action is likely to jeopardize the continued existence of a species or result in the destruction or adverse modification of critical habitat. Bioeconomics, therefore, also requested input from the Service officials concerning whether or not any of these projects would likely result in *an adverse modification determination without an accompanying jeopardy opinion*. It is important to note here that it would not have been appropriate for Bioeconomics to make such policy determinations.
4. The final Economic Analysis will address the impact of any additional substantive information received from public comments to this draft report. Thus, we solicit comments, and additional information relevant to this analysis, whether associated with the categories of impact highlighted in this report, or other economic effects of the critical habitat designation. Since the focus of this report is an assessment of incremental impacts of proposed critical habitat, we request information on the potential effects of the designation on current and future land uses, rather than on effects associated with the listing of the bay checkerspot butterfly, or of other State, or local requirements that influence land use.

EXECUTIVE SUMMARY

5. The purpose of this report is to identify and analyze the potential economic impacts that would result from the proposed critical habitat designation for the bay checkerspot butterfly (*Euphydryas editha bayensis*). This report was initially prepared by Bioeconomics, Inc., under subcontract to Industrial Economics, Incorporated, for the U.S. Fish and Wildlife Service's Division of Economics.
6. Section 4(b)(2) of the Endangered Species Act (Act) requires the Service to base critical habitat proposals upon the best scientific and commercial data available, after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. The Service may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas within critical habitat, provided the exclusion will not result in extinction of the species.

Proposed Critical Habitat

7. The Service has proposed designation of critical habitat within an approximately 10,597 hectare (26,182 acre) area occupied by the bay checkerspot butterfly in San Mateo and Santa Clara Counties in California. The proposed critical habitat is contained within 15 units. A majority of the proposed critical habitat is privately owned: according to the Service, 79% of the area is under private ownership, and the remaining 21% consists of State or local land. There is no Federal or Tribal land contained within the proposed critical habitat units.

Framework and Economic Impacts Considered

8. This analysis defines an impact of critical habitat designation to include any effect the critical habitat designation has above and beyond the impacts associated with the listing of the butterfly. To evaluate the incremental economic impacts attributable to the critical habitat designation for the butterfly, above and beyond the Act listing, the following analysis assumes a "without critical habitat" baseline and compares it to a "with critical habitat" scenario. The difference between the two is a measurement of the net change in economic activity that may result from the designation of critical habitat for the butterfly.
9. The "without critical habitat" baseline represents current and expected economic activity

under all existing modifications prior to critical habitat designation. These include the take restrictions that result from the Act listing for the butterfly (and listings for other relevant species), modifications resulting from section 7 consultations on whether actions jeopardize the continued existence of the species, as well as other Federal, State, and local requirements that may limit economic activities in the regions containing the proposed critical habitat units. Section 9 of the Act makes it illegal for any person to "take" a listed species, which is defined by the Act to mean harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or the attempt to engage in any such conduct.¹ This analysis focuses on potential costs and benefits of critical habitat for the butterfly, above and beyond any costs or benefits already in existence due to the listing of the butterfly and other species found within the butterfly's proposed critical habitat.

10. To estimate the incremental costs and benefits that critical habitat designation would have on existing and planned activities and land uses, the following framework was applied:

1. Develop a comprehensive list of possible Federal nexuses on Federal, State, county, municipal, and private lands in and around the proposed critical habitat area.
2. Review historical patterns and current information describing the section 7 consultations in the proposed critical habitat area to evaluate the likelihood that nexuses would result in consultations with the Service.
3. Determine whether specific projects and activities within the proposed critical habitat involve a Federal nexus and would likely result in section 7 consultations.
4. Evaluate whether section 7 consultations with the Service would likely result in any modifications to projects, activities, or land uses.

11. Using the framework outlined above, this analysis evaluates potential costs and benefits associated with the proposed designation of critical habitat. Three primary categories of potential incremental costs are considered in the analysis. These categories include:

- C Costs associated with conducting re-initiations or extensions of existing section 7 consultations occurring under the listing, or with the incremental effort associated with new consultations (e.g., administrative effort).
- C Costs associated with uncertainty and public perceptions resulting from the designation of critical habitat. Uncertainty and public perceptions about the

¹ 15 U.S.C. 1531 et seq.

likely effects of critical habitat that may cause project delays and changes in property values, regardless of whether critical habitat actually generates incremental impacts.

- C Costs associated with any modifications to projects, activities, or land uses resulting from the outcome of section 7 consultation with the Service that would not already be required due to section 7 consultations on whether the project jeopardizes the continuing existence of the species.

12. Potential economic benefits considered in this analysis include use and non-use values. Non-use benefits associated with designation of critical habitat may include resource preservation or enhancement in the form of biodiversity, ecosystem health, and intrinsic (passive use) values.² Use benefits associated with the proposed designation could include enhancement of recreational opportunities such as wildlife viewing. Finally, the public's perception of the potential importance of critical habitat may result in increases to property values, just as the perception of modifications may result in property value reductions, regardless of whether critical habitat generates such impacts.

Preliminary Results

- C Few incremental consultations or other costs due to proposed critical habitat are expected to occur above and beyond those associated with the listing for the bay checkerspot butterfly. The four supporting factors are:
 - i. All lands included in the proposed critical habitat for the butterfly are either privately held or State or local lands. No evident Federal nexuses exist for many of these properties, so activities and projects on these lands will be largely unaffected by critical habitat.
 - ii. At most, three of the 15 proposed critical habitat units are currently unoccupied. The Service has determined that in units currently occupied by the butterfly “any Federal action or authorized action that could potentially cause an adverse modification of the proposed critical habitat would currently be considered as “jeopardy” under the Act in areas occupied by the bay checkerspot.” (65 FR 61228) There would, therefore, be no incremental impacts associated with critical habitat in 12 of the 15 proposed units, in accord with this

² Intrinsic values, also referred to as passive use values, include categories of economic benefits such as existence value, i.e., knowledge of continued existence of a resource or species; and bequest value, i.e., preserving the resource or species for future generations.

determination by the Service.

- iii. There exist a large number of other listed species occupying the serpentine soils that provide habitat for the butterfly. There are 13 other species endemic to the San Francisco area serpentine soils. Some of these species, such as the Santa Clara Valley dudleya co-occur almost everywhere with the butterfly. The existence of so many listed species within the proposed habitat for the butterfly leads to a high level of baseline regulatory review and control in the proposed critical habitat.
- iv. Over the 13 year period since the listing of the butterfly as threatened, there have been only 4 consultations associated with the listing provisions of the Act. The very low level of consultation activity associated with the listing provisions of the Act suggest that the incremental impacts associated with critical habitat designation will also be very low.

C The most likely source of consultations arising from the designation of critical habitat for the bay checkerspot butterfly is from internal consultations within the Service. Two activities that could trigger such internal consultations are habitat enhancement work funded by the Service within the San Bruno Mountain Area Habitat Conservation Plan, and possible decisions to reintroduce the butterfly within the San Bruno unit or the Jasper Ridge unit. Such internal consultations largely are part of the normal operations of the Service and would not have significant economic costs associated with them.

- In one of the proposed critical habitat units (Communications Hill) there is a potential that future residential development could impact existing wetlands and trigger consultations with the Army Corps of Engineers. Since the Communications Hill unit is occupied by one or more endangered plant species, it is likely that consultations on plants would be extended to include effects on butterfly critical habitat. It is not currently known whether the unit is occupied by the butterfly. The Service on biological grounds believes the area should be presumed occupied, but acknowledges that there is controversy over this. As a worst case analysis, therefore, this Economic Analysis evaluates the case that addressing the bay checkerspot in future consultations within the unit would be attributable to the critical habitat designation. Extensive development of this area is outlined in the general plan of the City of San Jose, and at the present time, the Service knows of one development proposal in this unit which would trigger a section 7 consultation. It is estimated that 3 to 5 such consultations could occur in the future at costs associated with consultation and project modifications potentially ranging up to approximately \$3.8

million.

- In currently occupied units, consultations would already be required due to the listing of the species. Designating critical habitat may add an increment of complexity to future consultations, in that such consultations would now also address critical habitat. While critical habitat designation might lead to slightly more complex future consultations, the actual consultations in these occupied units would be required due to the listing of the species, rather than critical habitat designation for the butterfly.

Exhibit ES-1 summarizes these preliminary findings.

Exhibit ES-1				
SUMMARY OF POTENTIAL CONSULTATIONS AND IMPACTS WITHIN PROPOSED CRITICAL HABITAT FOR THE BAY CHECKERSPOT BUTTERFLY				
Land Owner	Reasonably Foreseeable Activities and Land Uses within Proposed Critical Habitat	Likelihood of New Consultations	Estimated Number of Potential New or Reinitiated Consultations	Expected Costs of Project Modifications
Stanford University	Reintroduction of the butterfly within the Jasper Ridge Preserve	Moderate to High	1	none - negligible
State & San Mateo County	Habitat restoration and reintroduction of butterfly within the San Bruno Mtn. unit	Moderate to High	1	none - negligible
Private	Residential development within existing wetland areas in the Communication Hill unit	Moderate to High	3 to 5	Up to \$50,000 in consultation costs and between \$960,000 and \$3,740,000 in mitigation costs

INTRODUCTION

SECTION 1

13. On September 18, 1987, following a review of available information, the U.S. Department of the Interior's Fish and Wildlife Service (Service) listed the bay checkerspot butterfly (*Euphydryas editha bayensis*) as a threatened species (52 FR 35366). At the time of the listing, because of difficulty in resolving the value of specific habitats to the species and assessing the activities being conducted in those areas, the Service concluded that critical habitat was not determinable. In September of 1988, the Service published a Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area (Recovery Plan) that includes the bay checkerspot butterfly (Service, 1998). On June 30, 1999, the Center for Biological Diversity filed a complaint against the Service challenging its critical habitat findings for seven species, including the bay checkerspot. On August 30, 2000, the United States District Court for the Northern District of California (Southwest Center for Biological Diversity v. Bruce Babbitt, et al., CIV 99-3202 SC) ruled on several of the species involved, including the bay checkerspot. The court ordered the Service to propose critical habitat within 60 days of the ruling and to finalize the designation within 120 days of the proposed designation.
14. Under section 4(a)(3) of the Endangered Species Act of 1973, as amended (Act), the Service is required to consider designation of critical habitat for all species listed as endangered or threatened. Critical habitat refers to a geographic area(s) that is essential for the conservation of a threatened or endangered species and that may require special management or protection. Critical habitat designation can help focus conservation activities for a listed species by identifying areas that are essential. Critical habitat designation contributes to Federal land management agencies' and the public's awareness of the importance of these areas.
15. In addition to its informational role, the designation of critical habitat may provide protection where significant threats have been identified. This protection derives from section 7 of the Act, which requires Federal agencies to consult with the Service in order to ensure that activities they fund, authorize, or carry out are not likely to result in destruction or adverse modification of critical habitat. After listing a species, Federal agencies must consult with the Service regarding any activities that may affect the species. The Service then determines whether the activity may jeopardize the species. Act regulations define jeopardy as any action that would appreciably reduce the likelihood of both the survival and recovery of the species. By contrast, the designation of critical

habitat requires Federal agencies to consult with the Service regarding any action that may affect or destroy designated critical habitat. The Service then determines whether the activity may adversely modify critical habitat. Adverse modification of critical habitat is defined as any direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of the species.

16. The designation of critical habitat can include areas within and outside of the geographical range occupied by the species. Section 3(5)(A) of the Act addresses two categories of critical habitat. One category consists of specific areas within the geographic area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (i) essential to the conservation of the species, and (ii) that may require special management considerations or protection. The other category consists of specific areas outside the geographic area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. Federal agencies must consult with the Service regarding any activities they fund, authorize, or carry out on critical habitat designated either within or outside the geographical area occupied by the species.

CONSULTATION UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT

17. Section 7(a)(2) of the Act requires Federal agencies to consult with the Service whenever activities they fund, authorize, or carry out may affect listed species or designated critical habitat. Section 7 consultation with the Service is designed to ensure that any current or future Federal actions do not appreciably diminish the value of the critical habitat for the survival and recovery of the species. Activities on land owned by individuals, organizations, states, local and Tribal governments only require consultation with the Service if their actions require a Federal permit, license, or other authorization; or involve Federal funding. Federal actions not affecting the species or its critical habitat, as well as actions on non-Federal lands that are not federally funded, authorized, or permitted, will not require section 7 consultation.
18. For all consultations, the relevant Federal agency consults with the Service. For consultations where the consultation involves an activity proposed by a State or local government or a private entity (the "applicant"), the Federal agency with the nexus to the activity (the "Action agency") serves as the liaison with the Service. The consultation process may involve both informal and formal consultation with the Service.
19. Informal section 7 consultation is designed to assist the Federal agency and any applicant in identifying and resolving potential conflicts at an early stage in the planning process (50 CFR 402.13). Informal consultation consists of informal discussions between the Service and the agency concerning an action that may affect a listed species or its designated critical habitat. In preparation for an informal consultation, the applicant must compile all biological, technical, and legal information necessary to analyze the scope of the activity and discuss strategies to avoid, minimize,

or otherwise affect impacts to listed species or critical habitat.³ During the informal consultation, the Service makes advisory recommendations, if appropriate, on ways to minimize or avoid adverse effects. Informal consultation may be initiated via a phone call or letter from the Federal agency, or a meeting between the Federal agency and the Service.

20. A formal consultation is required if the proposed action is likely to adversely affect listed species or designated critical habitat in ways that cannot be avoided through informal consultation (50 CFR 402.14). Formal consultations determine whether a proposed agency action is likely to jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat. Determination of whether an activity will result in jeopardy to a species or destruction or adverse modification of its critical habitat is dependent on a number of variables, including type of project, size, location, and duration. If the Service finds, in their biological opinion, that a proposed agency action is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify the critical habitat, the Service may identify reasonable and prudent alternatives that are designed to avoid jeopardy and/or adverse modification to the listed species or critical habitat.
21. Reasonable and prudent alternatives are defined at 50 CFR 402.02 as alternative actions that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Service believes would avoid jeopardizing the species or destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing reasonable and prudent alternatives vary accordingly.
22. Federal agencies are also required to evaluate their actions with respect to any species that is proposed as endangered or threatened and with respect to its proposed critical habitat. Regulations implementing the interagency cooperation provisions of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act and regulations at 50 CFR 402.10 require Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a proposed species or to result in destruction or adverse modification of proposed critical habitat.

PURPOSE AND APPROACH OF ECONOMIC ASSESSMENT

³ Many applicants incur costs to prepare analyses as part of the consultation package. These costs vary greatly depending on the specifics of the project. Major construction activities, as referred to in the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et seq.), require that a biological assessment be completed prior to informal consultation. In most cases, these costs are attributable to the fact that a species has been added to the list of threatened and endangered species rather than the designation of critical habitat.

23. Under the regulations promulgated pursuant to the Act, the Service is required to make its decision concerning critical habitat designation on the basis of the best scientific and commercial data available and to consider economic and other relevant impacts of designating a particular area as critical habitat. The Service may exclude areas from critical habitat upon a determination that the benefits of such exclusions outweigh the benefits of specifying such areas as critical habitat. The purpose of this report is to identify and analyze the potential economic costs and benefits that could result from the proposed critical habitat designation for the bay checkerspot butterfly.
24. The analysis must distinguish between economic impacts caused by the listing of the butterfly and those additional effects that would be caused by the proposed critical habitat designation. *The analysis only evaluates economic impacts resulting from critical habitat designation that are above and beyond impacts caused by the listing of the butterfly.* In the event that a land use or activity would be limited or prohibited by another existing statute, regulation, or policy, the economic impacts associated with those limitations or prohibitions would not be attributable to critical habitat designation.
25. This analysis assesses how critical habitat designation for the butterfly may affect current and planned land uses and activities on State, county, local and private land. For federally managed land, designation of critical habitat may modify land uses, activities, and other actions that threaten to adversely modify habitat. For State, county, local, and private land subject to critical habitat designation, modifications to land uses and activities can only be required when a “Federal nexus” exists (i.e., the activities or land uses of concern involve Federal authorizations, Federal funding, or other Federal actions). Activities on State and private land that do not involve a Federal nexus are not restricted by critical habitat designation.
26. To be considered in the economic analysis, activities should be reasonably foreseeable, which this analysis defines as activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. This analysis considers all reasonably foreseeable activities on both occupied and unoccupied lands. These reasonably foreseeable activities that could potentially result in section 7 consultations are considered.

STRUCTURE OF REPORT

27. The remainder of the report is organized as follows:
- C **Section 2: Species Description and Relevant Baseline Information** - Provides general information on the species, a brief description of the proposed critical habitat units, and regulatory and socio-economic information describing the baseline, that is, the "without critical habitat" scenario.
 - C **Section 3: Analytic Framework and Results** - Describes the framework and methodology for the analysis, and provides preliminary findings of potential incremental costs and benefits resulting from the proposed designation.

SPECIES DESCRIPTION AND RELEVANT BASELINE INFORMATION⁴

SECTION 2

DESCRIPTION OF SPECIES

28. The bay checkerspot is a medium-sized butterfly with a wingspan of about 5 centimeters (2 inches). The forewings have black bands along all the veins on the upper wing surface, contrasting sharply with bright red, yellow and white spots. The known range of the bay checkerspot is now reduced to Santa Clara and San Mateo Counties, and the butterfly is patchily distributed in these locales. Bay checkerspot butterfly populations vary greatly from year to year. Many or most individuals of the species live only a single year, and with high fertility, high mortality, and sensitivity to weather and perhaps other ecological conditions, large population swings are common for the bay checkerspot. Habitat of the bay checkerspot exists on primarily shallow, serpentine-derived, or similarly droughty or infertile soils, which support the butterfly's food sources.
29. The primary constituent elements of critical habitat for the bay checkerspot are defined as those habitat components that are essential for the primary biological needs of foraging, sheltering, breeding, maturation, and dispersal (50 CFR 424.12(b)). The areas proposed by the Service as critical habitat for the butterfly contain some or all of the primary constituent elements for survival of the butterfly including:
- C Areas of open grassland;
 - C Stands of *Plantago erecta*, *Castilleja exserta*, or *Castilleja densiflora*;

⁴ The information on the bay checkerspot butterfly and its habitat included in this section was obtained from the *Proposed Designation of Critical Habitat for the Bay checkerspot butterfly*, October 16, 2000 (65 FR 61218).

- Spring flowers providing nectar;
- Pollinators of the bay checkerspot's food and nectar plants;
- Soils derived from serpentinitic rock;
- Stable cracks or holes in the soil or surface rocks or rock outcrops;
- Wetlands providing moisture during times of spring drought; and
- Space for dispersal between habitable areas.

Additionally, topography with varied slopes and aspects is a primary constituent element to be conserved when it is present in combination with one or more of the primary constituent elements above.

PROPOSED CRITICAL HABITAT UNITS

30. The Service has proposed 15 critical habitat units. The proposed designation encompasses approximately 26,182 acres (10,597 ha) in San Mateo and Santa Clara Counties in California. The majority of the lands within the proposed units are privately owned (approximately 79 percent). No Federal lands are included in the units. Exhibit 2-1 shows a breakdown of land ownership within the two counties containing the proposed critical habitat units. Below is a general description of the proposed units and their locations.

- **Unit 1. Edgewood Park/Triangle Unit** Occurring in San Mateo County, this unit comprises 217 ha (535 ac). The area supports the Edgewood population of the butterfly discussed in the species' Recovery Plan, which is the main population of the San Mateo metapopulation of the bay checkerspot (Service 1998).
- **Unit 2. Jasper Ridge Unit** Occurring within San Mateo County, the unit covers 287 ha (709 ac) in Stanford University's Jasper Ridge Biological Preserve. The population has declined severely in recent years, and may now be extirpated. However, the Service is confident that a stable population of the species can be restored to Jasper Ridge.
- **Unit 3. San Bruno Mountain Unit** This unit also occurs in San Mateo County, with approximately 303 ha (749 ac). This unit is mostly within San Bruno Mountain State and County Park, and is inside the boundaries of the San Bruno Mountain Area Habitat Conservation Plan area. The bay checkerspot formerly inhabited this area, but is believed to have been extirpated around 1986. It is reasonable to expect that the butterfly can be reestablished here.

- **Unit 4. Bear Ranch Unit** The Bear Ranch unit, totaling 250 ha (618 ac), lies west of Coyote Lake (Coyote Reservoir) in the eastern hills of the Santa Clara Valley, in southern Santa Clara County. This location represents one of the most recent population discoveries of the bay checkerspot and has been documented for several years as a persistent population.
- **Unit 5. San Martin Unit** This unit includes 237 ha (586 ac) west of San Martin, in the western foothills of the Santa Clara Valley in southern Santa Clara County. Regular occupation of the unit by the bay checkerspot has been documented, although no recent quantitative surveys are available of this population. The unit lies entirely on private lands in unincorporated Santa Clara County.
- **Unit 6. Communications Hill Unit** Communications Hill, and adjacent hilltops in south-central San Jose, are formed by outcroppings of serpentine rock, with grasslands capable of supporting the bay checkerspot. This unit occurs in Santa Clara County and covers 179 ha (443 ac) of mostly undeveloped land. The butterfly has been documented on Communications Hill in the past, but a recent sampling during part of the spring 2000 flight season did not detect the species. Whether the unit is currently occupied is not known. Much of this unit lies on private lands within unincorporated lands, with a smaller area in the City of San Jose.
- **Unit 7. Kalana Hills Unit** The Kalana Hills unit in Santa Clara County comprises 240 ha (592 ac) on the southwest side of the Santa Clara Valley between Laguna Avenue and San Bruno Avenue. Populations of the bay checkerspot has been documented on these outcrops in recent and past surveys.
- **Unit 8. Kirby Unit** The Kirby critical habitat unit includes 2,855 ha (7,053 ac) along the southern portion of “Coyote Ridge” in Santa Clara County. It contains the Kirby area for the bay checkerspot discussed in the species' Recovery Plan (Service 1998). The Kirby critical habitat unit regularly supports one of the largest populations of the bay checkerspot, and is considered one of the centers of the species' Santa Clara County metapopulation. The Recovery Plan considers protection of the area of the highest priority for conservation of the species.
- **Unit 9. Morgan Hill Unit** The Morgan Hill unit in Santa Clara County includes 374 ha (925 ac) northwest of the City of Morgan Hill in Santa Clara County. The unit has been documented to be occupied by the butterfly in the past, as well as in more recent surveys in the past 2 to 3 years. Because of its large habitat area and proximity to core populations of the bay checkerspot, the Recovery Plan considers protection of this area essential to the conservation of the species (Service 1998).
- **Unit 10. Metcalf Unit** This unit includes 1,616 ha (3,994 ac) in Santa Clara County, east of Highway 101, south of Silver Creek Valley Road, north of Metcalf Canyon, and west of

Silver Creek. The unit contains the Metcalf population area for the bay checkerspot, one of the four largest habitat areas and three largest current population centers for the butterfly (Service 1998). Hundreds of acres of serpentine soils and thousands of bay checkerspots occur within the unit. This area is considered one of the centers of the species' Santa Clara County metapopulation. The Recovery Plan considers protection of the area of the highest priority for conservation of the butterfly.

- **Unit 11. San Felipe Unit** This unit includes 404 ha (998 ac) in Santa Clara County, southwest of San Felipe Road and north of Metcalf Road, primarily on private lands in unincorporated county lands, but also within San Jose city limits. The unit contains the San Felipe population area for the bay checkerspot, one of the four largest habitat areas and three largest current population centers for the butterfly (Service 1998). This area is considered one of the centers of the species' Santa Clara County metapopulation. The Recovery Plan considers protection of the area of the highest priority for conservation of the butterfly.
- **Unit 12. Silver Creek Unit** The Silver Creek unit comprises 700 ha (1,730 ac), primarily within the limits of the City of San Jose, but with some area on private lands in unincorporated Santa Clara County. The unit includes the Silver Creek Hills population area for the bay checkerspot (Service 1998). Small areas of public lands in this unit include portions of Coyote Creek Park and Silver Creek Linear Park. A 52 ha (128 ac) private bay checkerspot preserve dedicated by Shea Homes, the Silver Creek Valley Country Club Butterfly Habitat Reserve, lies within this unit. Also included is the proposed Ranch on Silver Creek development, a 28 ha (70 ac) preserve proposed by William Lyon Homes (former Presley Homes), and the proposed Ryland Homes Silver Ridge development and private open space.
- **Unit 13. San Vicente-Calero Unit** The San Vicente-Calero unit contains 759 ha (1,875 ac) within and to the west of Calero County Park, Santa Clara County. This area supports a known population of the bay checkerspot in a large area of good-quality habitat.
- **Unit 14. Santa Teresa Hills Unit** The Santa Teresa Hills unit includes 1,821 ha (4,500 ac) in Santa Clara County with extensive areas of serpentine soils. Portions of the Santa Teresa Hills are known to support the butterfly now, and have supported the species in the past, but no current comprehensive survey of the butterfly in the area is available.
- **Unit 15. Tulare Hill Corridor Unit** The Tulare Hill Corridor unit, 355 ha (876 ac) in Santa Clara County, connects the Coyote Ridge (Kirby and Metcalf, and through them, San Felipe and Silver Creek) and Santa Teresa units. Tulare Hill is a prominent serpentine hill that rises from the middle of the Santa Clara Valley in southern San Jose, west of the crossing of Metcalf Road and Highway 101. Extensive habitat on the hill is currently occupied by the bay checkerspot, and is essential both as a population center and for dispersal across the valley.

Exhibit 2-1 APPROXIMATE AREA WITHIN SAN MATEO AND SANTA CLARA COUNTIES ENCOMPASSING PROPOSED CRITICAL HABITAT IN ACRES(AC) BY LAND OWNERSHIP (Percentages reflect percent of total proposed critical habitat acreage)				
County	Federal Land	Local/State Land	Private Land	Total
San Mateo	0	1,283 ac 64.4%	709 ac 35.6%	1,992 ac
Santa Clara	0	4,210 ac 17.4%	19,980 ac 82.6%	24,190 ac
Total	0	5,493 ac 21.0%	20,689 ac 79.0%	26,182 ac 100%
Source: <i>Proposed Designation of Critical Habitat for the Bay checkerspot butterfly</i> , October 16, 2000 (65 FR 61218).				

RELEVANT BASELINE INFORMATION

31. This section, provides information about regulations and requirements that exist in the baseline, i.e., the "without critical habitat" scenario. In addition, it provides information about the socio-economic characteristics of the region included in the critical habitat.

Recovery Plan

32. An important component of the baseline scenario is the *Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area* (Recovery Plan) published in 1998.⁵ While this Recovery Plan imposes no binding restrictions on landowners and managers in the proposed critical habitat designation, it serves as an important information source for landowners regarding butterfly habitat. All of the proposed critical habitat units lie wholly within areas described (either explicitly by name or description of habitat characteristics) as essential habitat for the butterfly in the Recovery Plan.

Baseline Statutory and Regulatory Requirements

33. The baseline requirements include regulations regarding the listing of the butterfly and other

⁵U.S. Fish and Wildlife Service. 1998. "Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area." Region 1, U.S. Fish and Wildlife Service, Portland, Oregon. 330 pp.

species and relevant State statutes and regulations.

Listing

34. In September, 1987 the Service listed the butterfly as an endangered species. Under the listing, Federal agencies must consult with the Service regarding any actions they fund, authorize, or carry out that may affect the continued existence of the species. The listing of the butterfly is the most significant aspect of baseline protection, as it provides the most protections, since it makes it illegal for any person to “take” a listed species, which is defined by the Act to mean harass, harm, pursue, hurt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.

Overlap with Other Listed Species

35. In addition to the butterfly listing, the Service staff at the Sacramento Fish and Wildlife office indicate that much or all of the proposed critical habitat for the butterfly lies within the critical habitat for a number of other federally listed species.
36. As the proposed units of critical habitat for the butterfly lie within the known habitat of many other listed species, the Sacramento Fish and Wildlife Office staff report that most activities in this area already require section 7 consultations. While designation of critical habitat in these areas may not result in additional consultations, conducting section 7 consultations for two species simultaneously may result in incremental complexities.

State Statutes and Regulations

37. Other relevant State statutes include the California Environmental Quality Act (CEQA) which requires identification of significant environmental effects of proposed projects that have the potential to harm the environment. The lead agency (typically the California State agency in charge of the oversight of a project) must determine whether a proposed project would have a "significant" effect on the environment. Section 15065 of Article 5 of the CEQA regulations states that a finding of significance is mandatory if the project will "substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory." If the lead agency finds a project will cause significant impacts, the landowners must

prepare a Environmental Impact Report (EIR).⁶ Any economic impacts generated by the EIR process are due to the presence of a particular species on the project land, regardless whether critical habitat is designated. Review of the CEQA statute and conversations with the California Resources Agency (one of the agencies responsible for administering CEQA) revealed that when a species is known to occupy a parcel of land, the designation of critical habitat alone does not require a lead agency to pursue any incremental actions.⁷

38. In addition to State of California regulations under CEQA, for potential development within the proposed critical habitat units, local cities such as Morgan Hill and San Jose have adopted development plans which include to various extents urban growth boundaries, viewshed, and slope ordinances. Areas of a number of the proposed critical habitat units would be subject to greater or lesser degrees to these types of regulatory controls on future development.

Socioeconomic Profile of the Critical Habitat Area

39. To provide context for the discussion of potential economic impacts due to proposed critical habitat, this section summarizes key economic and demographic information for San Mateo and Santa Clara Counties in California.

San Mateo County

40. Exhibit 2-2 summarizes key economic data for San Mateo County. In 1999, San Mateo County had a total population of 702,102. The 1999 civilian labor force in San Mateo County was 399,100 with an unemployment rate of 2.0 percent. This rate is significantly lower than the 1999 statewide rate of 5.2 percent. The percent of people living below the poverty level in the county was 6.5% in 1995 compared to 16.5% for the entire State of California.
41. The largest economic sector in San Mateo County is services accounting for 36.9 percent of total employment. The largest growth components of this sector are software development and related computer services. Other significant economic sectors in the county are retail trade (16.0%), and financial services, insurance and real estate (9.9%).
42. Labor market conditions have been steadily improving in San Mateo County over the past 5

⁶California Resources Agency, "Summary and Overview of the California Environmental Quality Act", November 12, 1998, http://ceres.ca.gov/topic/env_law/ceqa/summary.html, August 23, 2000.

⁷Personal communication with the California Resources Agency Office on September 11, 2000.

years. The county has continued to record strong job growth and steadily declining unemployment rates over this period.

Santa Clara County

43. Exhibit 2-2 also summarizes key economic data for Santa Clara County. In 1999, Santa Clara County had a total population of 1,647,419. The 1999 civilian labor force in Santa Clara County was 962,800 with an unemployment rate of 3.0 percent. This rate is significantly lower than the 1999 statewide rate of 5.2 percent. The percent of people living below the poverty level in the county was 9.1% in 1995 compared to 16.5% for the entire State of California.
44. The largest economic sector in Santa Clara County is services, accounting for 36.2 percent of total employment. The largest growth components of this sector is business services. Other significant economic sectors in the county are manufacturing (22.7%) and retail trade (13.6%).
45. Labor market conditions in the county have been steadily improving over the past 5 years. The county has continued to record strong job growth and steadily declining unemployment rates over this period.

Exhibit 2-2		
SOCIOECONOMIC CHARACTERISTICS OF SAN MATEO AND SANTA CLARA COUNTIES IN CALIFORNIA		
Statistic	San Mateo County	Santa Clara County
Population of County (1999)	702,102	1,647,419
Percent of State Population	2.1%	5.0%
Percent Increase in Population (1990-1999)	8.1%	10.0%
Percent of Residents Living Below the Poverty Level (1995)	6.5%	9.1%
Total Full and Part time Employment (1997)	447,056	1,179,100
Unemployment Rate (1999)	2.0%	3.0%
	1997 Full/Part Time Employment (Percent of County Total)	
Industry	San Mateo County	Santa Clara County
Farming	2,688 (0.6%)	4,137 (0.4%)
Agricultural Services	4,973 (1.0%)	11,514 (1.0%)
Mining	387 (0.1%)	568 (0.0%)
Construction	22,578 (5.1%)	49,696 (4.2%)
Manufacturing	38,527 (8.6%)	267,546 (22.7%)
Transportation/Utilities	42,441 (9.5%)	35,098 (3.0%)
Wholesale Trade	24,813 (5.6%)	62,333 (5.3%)
Retail Trade	71,483 (16.0%)	160,197 (13.6%)
Finance/ Insurance/ Real Estate	44,088 (9.9%)	67,858 (5.7%)
Services	164,791 (36.9%)	426,496 (36.2%)
Government	30,287 (6.8%)	93,657 (7.9%)
Sources: California Employment Development Department, Labor Market Information Division. 2000. http://www.calmis.calwnet.gov/file/COsnaps/scrzSNAP.pdf and Regional Economic Information System: 1969-1997 prepared by the Bureau of Economic Analysis, U.S. Dept. of Commerce. --Washington: The Bureau of Economic Analysis, http://govinfo.library.orst.edu/cgi-bin/reis-list?3_05-087.cac .		

ANALYTIC FRAMEWORK AND RESULTS

SECTION 3

46. This section provides an overview of the framework for the analysis, a description of information sources used, and a discussion of potential economic costs and benefits associated with the proposed designation of critical habitat for the bay checkerspot butterfly.

FRAMEWORK FOR ANALYSIS

47. This economic analysis examines the potential impacts of modifications to specific land uses or activities within those areas designated as critical habitat for the butterfly. The analysis evaluates impacts in a "with" critical habitat designation versus a "without" critical habitat designation framework, measuring the net change in economic activity attributable to the critical habitat proposal. The "without" critical habitat designation scenario, which represents the baseline for analysis, includes all protection already accorded to the butterfly under Federal laws, such as the National Environmental Policy Act, and State laws, such as the California Environmental Quality Act. The difference between the two scenarios is a measurement of the net change in economic activity that may result from the designation of critical habitat for the butterfly. The listing of the butterfly is the most significant aspect of baseline protection, as it provides the most protections since it makes it illegal for any person to "take" a listed species, which is defined by the Act to mean harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct and requires Federal agencies to consult with the Service when an activity they undertake, fund, or authorize, may affect a listed species.

Categories of Economic Impacts

48. The focus of this economic analysis is to determine the incremental costs and benefits to land uses and activities from the designation of critical habitat that are above and beyond those that result from the listing of the species and existing Federal, State, and local laws. This analysis considers any incremental costs and benefits resulting from the proposed critical habitat designation. Exhibit 3-1 outlines the general costs and benefits considered in this analysis, and gives hypothetical examples of such costs and benefits.

Exhibit 3-1 TYPES OF POTENTIAL IMPACTS CONSIDERED IN CRITICAL HABITAT ECONOMIC ANALYSIS		
	Categories of Costs and Benefits	Examples
Costs	Costs associated with section 7 consultations: <ul style="list-style-type: none"> • new consultations C reinstituted consultations C consultations involving greater level of effort 	Administrative costs (e.g., phone calls, letter writing, meetings, travel time) and specialist consultant costs (e.g., biologists, surveyors or legal counsel).
	Costs of modifications to projects, activities and land uses.	Opportunity costs associated with seasonal change of project (e.g., activity limited to non-breeding seasons), or the relocation/redesign of project activities.
	Costs associated with uncertainty and perceptions of critical habitat effects: <ul style="list-style-type: none"> C changes in property values C project delays C legal costs 	Transitory decline in value of undeveloped properties within critical habitat, based on the public's perception that critical habitat will result in project modifications; legal suits brought against development in critical habitat areas.
Benefits	Benefits associated with uncertainty and perceptions of critical habitat effects.	Transitory increases in value of developed properties within and near critical habitat, based on the public's perception that critical habitat will slow development and restrict the supply of developed properties.
	Recreational and other use benefits.	Improvements to wildlife viewing for local residents and visitors.
	Non-use benefits.	Existence values resulting from successful recovery of butterfly, increased biodiversity, and ecosystem health.
	Improved Land Use Planning	Improvements to land use planning and permitting processes (e.g., CEQA surveys) based on the availability of information describing the location of critical habitat.

49. Potential costs associated with section 7 consultations due to proposed critical habitat include: (1) the value of time spent in conducting section 7 consultations beyond those associated with the listing of the butterfly, and (2) additional incremental modifications to land uses and activities as a result of consultations. The Service has recognized that there are approximately three different scenarios associated with the designation of critical habitat that could trigger incremental consultation costs:

- C Some consultations that have already been “completed” may need to be re-initiated to address critical habitat (in the case of the butterfly, only 4 consultations have occurred in the 13 years since its listing, thus the potential for re-initiation of

consultations is minimal);

- C Consultations taking place after critical habitat designation may take longer because critical habitat issues will need to be addressed, although the statutory timeframes for consultations will not change;
- C New consultations that would not have taken place but for designation of critical habitat.

50. Critical habitat could also result in economic costs triggered by the public's perception about the impact of critical habitat on particular parcels subject to the designation. Public perception that critical habitat results in project modifications could lead to real reductions in property values and increased costs to landowners. For example, a perception held by potential buyers that crime is high in a given neighborhood, though the area may actually be safe, can negatively influence the value of individual properties in the neighborhood. Often, a single event or series of events (for example, the publication of a newspaper article or a succession of crimes) create a change in public attitudes which in turn cause a change in the value of property. As more information on actual neighborhood attributes becomes available to the market over a period of time, the influence of the public's initial perception subsides. Although originating in perceived changes, a similar pattern of public attitudes about the influence of critical habitat could cause real economic effects. They may occur even in cases in which additional project modifications on land uses within critical habitat are unlikely to be imposed.
51. Uncertainty about the impacts of critical habitat also could result in costs to landowners. For example, uncertainty surrounding the definition of critical habitat could prompt some landowners to undertake steps to reduce that uncertainty, thereby incurring transaction costs. Specifically, in cases of critical habitat designation for other species, some landowners have elected to retain counsel, surveyors and other specialists to determine whether specific parcels lie within critical habitat boundaries, and/or whether the primary constituent elements are present on parcels. Thus, uncertainty over the critical habitat status of lands has the potential to create real economic losses as land owners incur costs to reduce and/or mitigate the effects of this uncertainty. Moreover, uncertainty may create delays, or in some cases, may lead to changes in land use decision-making, and may thereby result in opportunity costs.
52. In addition to considering potential economic impacts attributable to the proposed critical habitat, this analysis also considers economic benefits that may result from designation of critical habitat. Resource preservation or enhancement, which may be aided by designation of critical habitat, may constitute an increase in non-recreational values provided directly by the species and indirectly by its habitat. Categories of potential benefits associated with critical habitat designation

include enhancement of wildlife viewing⁸, increased biodiversity and ecosystem health, and intrinsic (passive use) values. Furthermore, designation of critical habitat could potentially lead to earlier recovery of the species, thus decreasing regulatory costs associated with listing. Finally, the public's perception of the potential importance of critical habitat may result in increases in property values, just as the perception of modifications may result in property value reductions, regardless of whether critical habitat generates such impacts.

Methodological Approach

53. As discussed in Section 1, critical habitat can only affect current or planned land uses where a Federal nexus is involved. Where current or future activities on State, county, municipal, or private lands involve Federal funding, Federal permitting, or other Federal involvement, section 7 consultation with the Service is required. Activities on State, county, municipal, and private lands that do not involve a Federal nexus are not affected by the designation of critical habitat. As a result, this report assesses potential economic impacts from critical habitat by first identifying those activities that will likely involve a Federal nexus. Once probable Federal nexuses are identified, specific examples of these nexuses within the proposed critical habitat are identified and evaluated to determine the likelihood of incremental consultations and the probability of resultant project modifications or other costs or benefits. Below, the specific steps used in this methodology are described:

- C First, identify potential Federal nexuses in area of concern. Develop comprehensive list of possible nexuses on State, county, municipal, and private lands in and around proposed critical habitat for the butterfly.
- C Second, review historical patterns for section 7 consultations in the proposed critical habitat area to determine the likelihood that nexuses are likely to result in consultations with the Service. However, as historical patterns are not totally accurate predictors of future events, also use current information and professional judgement of the Service and other Federal agency staff, regarding the likelihood of new, re-initiated, or extended incremental consultations.
- C Third, identify specific projects and activities that involve a Federal nexus in the proposed critical habitat area and will likely result in additional section 7 consultations with the Service, based on current and historical information.
- C Fourth, evaluate the probable impacts of any modifications resulting from

⁸ Wildlife viewing value, while perhaps low for direct viewing of a species such as the butterfly, could be substantial if habitat protection increased viewing opportunities for other more visible species as well.

consultation outcomes, as well as other incremental costs and benefits that may originate from the proposed designation (e.g., project delays, change in property values, enhanced recreational opportunities).

Information Sources

54. The methodology outlined above relies primarily on input and information from the Service staff. The final report will incorporate public comments pertaining to economic impacts of critical habitat designation examined in this analysis. Where necessary and appropriate, key individuals in State and local government were contacted to determine if specific Federal nexuses existed in their areas.

POTENTIAL FEDERAL NEXUSES WITHIN CRITICAL HABITAT

55. As outlined above, the first step in assessing potential impacts due to critical habitat for the bay checkerspot butterfly involves identification of the potential Federal nexuses within the affected area. Potential Federal nexuses within the proposed critical habitat are identified based on guidance from regional staff of the Service in Sacramento, California. Both current and future nexuses potentially occurring within critical habitat for the butterfly are identified, in order to develop a comprehensive list of all activities in the affected area that require Federal involvement in some form.
56. As the second step in assessing potential impacts, land ownership within the proposed critical habitat is reviewed to identify potential nexuses given major land ownership categories. Proposed critical habitat for the butterfly is comprised largely of private land. According to the Service, approximately 79 percent of proposed critical habitat for the butterfly is privately owned and the rest is State or local government land. No Federal land exists within the proposed critical habitat area for the butterfly. Therefore, this analysis focuses on Federal nexuses for activities on the private and the State and local government lands proposed as critical habitat for the butterfly.
57. Exhibit 3-2 identifies Federal agencies with possible nexuses in the proposed critical habitat, describes the individual nexuses, and shows whether the specific nexuses have historically resulted in section 7 consultations. This analysis focuses on identifying specific land use activities in the affected areas that are most likely to result in section 7 consultation. A combination of factors resulted in a minimum of Federal nexuses being identified in the case of the butterfly. For this species, the Service has determined that for much of the proposed critical habitat (12 of the 15 proposed units) any future consultations would be attributable to listing effects, and not the designation of critical habitat. For two of the remaining three units of proposed critical habitat, no specific Federal nexuses were identified other than those associated with internal actions of the Service. For the final, possibly unoccupied unit (Communications Hill Unit) the most likely nexus identified was that associated with residential development within the unit requiring a permit from

the Army Corps of Engineers. The relatively low level of expected future consultations resulting from critical habitat designation is consistent with the low level of listing-related consultation activity that has occurred in the 13 years since the species' listing.

58. Having identified potential nexuses within the proposed critical habitat, the analysis then focuses on identifying potential consultations and modifications to land use activities. Specific examples of activities involving a Federal nexus and requiring consultation with the Service are discussed. While the analysis focuses on those nexuses most likely to result in section 7 consultation, this analysis recognizes the possibility that consultations might occur for nexuses that have not triggered consultations in the past.

Exhibit 3-2 POTENTIAL FEDERAL NEXUSES WITHIN CRITICAL HABITAT FOR THE BAY CHECKERSPOT BUTTERFLY		
Federal Agency	Potential Federal Nexus on State, Local or Private Lands	Has Nexus Historically Occurred and/or Resulted in Consultation in Area?
Environmental Protection Agency	Funding or authorization of pesticide application	Yes
Federal Highway Administration	Funding or authorization of road building or improvements through critical habitat	Yes
Federal Communications Commission	Licensing of broadcast facilities	No
Army Corps of Engineers	Permitting residential activities impacting existing wetlands	Yes
Sources: Personal communication with Biologists and Section 7 coordinator, Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service.		

POTENTIAL COSTS AND BENEFITS DUE TO CRITICAL HABITAT

59. This section focuses on identifying specific costs and benefits associated with proposed designation of critical habitat for the butterfly. In the discussion of potential costs, specific land uses and activities within proposed critical habitat for the butterfly that involve a Federal nexus and may

result in section 7 consultation are identified. The likelihood that these section 7 consultations could result in modifications to current and proposed land use activities is evaluated. This analysis assumes compliance among landowners and Federal agencies with respect to responsibilities required by section 7 of the Act.

60. The bay checkerspot butterfly was listed as a threatened species in 1987. During the 13 years between fiscal years 1987 and 1999, the Service conducted four formal consultations on activities potentially affecting the butterfly. Service personnel from the Sacramento field office characterize this historical level of consultation activity as low, and expect that section 7 consultation activity under critical habitat designation will follow this trend for the species.
61. Below is a unit-by-unit discussion of potential costs and benefits associated with critical habitat designation for the butterfly. At most, three of the 15 proposed critical habitat units are currently unoccupied. The Service has determined that in units currently occupied by the butterfly “any Federal action or authorized action that could potentially cause an adverse modification of the proposed critical habitat would currently be considered as “jeopardy” under the Act in areas occupied by the bay checkerspot.” (65 FR 61228). There would, therefore, be no incremental impacts associated with critical habitat in 12 of the 15 proposed units, in accord with this determination by the Service. The following discussion states whether the units are occupied, and, where currently occupied, notes that the Service has determined any future impacts would be due to listing effects, and not result from critical habitat designation.
62. It should be noted that in currently occupied units, any future consultations would be slightly complicated by the necessity to consult on both the critical habitat and the listing provisions of the Act, rather than just on the species listing. This added level of analysis, however, would not result in new consultations, and (as evidenced by the very low level of historical consultation on the species) would likely not impose a significant additional economic burden on the consulting agencies.

Critical Habitat Units for bay checkerspot butterfly

63. **Unit 1. Edgewood Park/Triangle Unit.** Occurring in San Mateo County, the area is currently occupied and supports the Edgewood population of the butterfly discussed in the species' recovery plan, which is the main population of the San Mateo metapopulation of the bay checkerspot (Service 1998). This proposed critical habitat unit is currently occupied by the butterfly.
64. Lands within the Edgewood Park/Triangle Unit include most of the Edgewood Natural Preserve, a county park, and watershed lands of the San Francisco Water Department. Much of this land also falls within the San Francisco State Fish and Game Refuge. The major activities within this unit are recreational ones associated with the park lands. The water department lands are managed

to maintain watershed integrity. There are no obvious federal nexuses associated with activities within this unit, with the possible exception of any habitat restoration activities to be undertaken by the Service. The presence of the species within this unit indicates that any consultations pursuant to section 7 of the Act already would be required because of the listing of the species. Additionally, the Service already considers habitat issues in its consultations related to the listing of the species. No specific impacts associated with critical habitat designation are expected within this unit.

65. **Unit 2. Jasper Ridge Unit.** Occurring within San Mateo County, the unit is in Stanford University's Jasper Ridge Biological Preserve. The area has been very recently occupied with very limited sightings in both 1998 and 1999. The population has declined severely in recent years, and may now be extirpated. However, the Service is confident that a stable population of the species can be restored to Jasper Ridge.
66. Conversations with Sacramento Office biologists with the Service indicate that the only foreseeable expected Federal activity within the Jasper Ridge Biological Preserve that could trigger a section 7 consultation would be the decision by the Service to reintroduce the butterfly into this area if that action were deemed necessary. This type of internal consultation by the Service would include actions already undertaken in the normal operations of the Service, and would not impose significant additional regulatory burdens.
67. **Unit 3. San Bruno Mountain Unit** This unit also occurs in San Mateo County. This unit is mostly within San Bruno Mountain State and County Park, and is inside the boundaries of the San Bruno Mountain Area Habitat Conservation Plan area. The bay checkerspot formerly inhabited this area, but is believed to have been extirpated around 1986. It is reasonable to expect that the butterfly can be reestablished here.
68. As is the case for the Jasper Ridge unit, reintroduction actions by the Service to either engage in habitat restoration activities or to reintroduce the butterfly within this unit could trigger additional internal agency consultations. As noted above, this type of internal consultation by the Service would include actions already undertaken in the normal operations of the Service, and would not impose significant additional regulatory burdens.
69. **Unit 4. Bear Ranch Unit** The Bear Ranch unit lies west of Coyote Lake (Coyote Reservoir) in the eastern hills of the Santa Clara Valley, in southern Santa Clara County. This location represents one of the most recent population discoveries of the bay checkerspot and has been documented for several years as a persistent population.
70. The Bear Ranch Unit is now wholly owned by the Santa Clara Parks and Recreation Department. At the present, the area is not a highly developed parkland, and the predominant activity in the unit is cattle grazing. No obvious federal nexuses exist currently within this unit. One potential future activity that would require a section 7 consultation would involve any facility development within the critical habitat boundaries that affected the primary constituent elements

which required a Army Corps of Engineers permit. The likelihood of such an action is not known at this time. This proposed critical habitat unit is currently occupied by the butterfly. The presence of the species within this unit indicates that any consultations pursuant to section 7 of the Act already would be required because of the listing of the species. Additionally, the Service already considers habitat issues in its listing consultations. No specific impacts associated with critical habitat designation are expected within this unit.

71. **Unit 5. San Martin Unit** This unit lies west of San Martin, in the western foothills of the Santa Clara Valley in southern Santa Clara County. Regular occupation of the unit by the bay checkerspot has been documented. The unit lies entirely on private lands in unincorporated Santa Clara County. This proposed critical habitat unit is currently occupied by the butterfly.
72. The private land within the San Martin Unit is currently mostly used for ranching purposes. A portion of the unit has been subdivided into small ranchettes for several decades. Many of these subdivided lots, however, remain undeveloped at this time. There exist no obvious Federal nexuses within this unit, at this time. The presence of the species within this unit indicates that any consultations pursuant to section 7 of the Act already would be required because of the listing of the species. Additionally, the Service already considers habitat issues in its listing consultations. No specific impacts associated with critical habitat designation are expected within this unit.
73. **Unit 6. Communications Hill Unit.** This unit occurs in Santa Clara County and covers mostly undeveloped land. Much of this unit lies on private lands within unincorporated lands, with a smaller area in the City of San Jose. The butterfly has been documented on Communications Hill in the past, but a recent sampling during part of the spring 2000 flight season failed to detect the species. Whether the unit is currently occupied is not known. The Service on biological grounds believes the area should be presumed occupied, but acknowledges that there is controversy over this. As a worst case analysis, therefore, the economic analysis below evaluates the case that addressing the bay checkerspot in future consultations within the unit would be attributable to the critical habitat designation.
74. The Communications Hill unit has several development characteristics that raise the potential for future Federal nexuses. While much of this unit is undeveloped private land with no obvious Federal nexuses, the unit also is crossed by a major road, and railroad tracks, and may contain portions of a Santa Clara County communications facility, and a San Jose water company facility. Additionally, the unit contains a quarry, that after appropriate reclamation could be restored to bay checkerspot habitat. The diversity of current development within the unit raises the possibility that future expansion of some of these existing facilities may include Federal nexuses and therefore trigger section 7 consultations. At present, however, no proposals for expansion of the existing transportation, communication, or water company facilities are known⁹.

⁹ Personal communication, San Jose Planning Department. Nov 14, 2000.

75. In 1992, the City of San Jose published the “Communications Hill Specific Plan.”¹⁰ This document provided the blueprint for development of a high-density residential community within portions of the proposed Communications Hill critical habitat unit. Conversations with the City of San Jose Planning Department indicate that the city views development of this area as important to their long term growth strategy, and envisions that when fully developed, the unit will include between 2,500 and 4,000 new residential units, additional commercial activities, parks, and schools¹¹. As there are existing wetlands within this unit, it is possible that future residential development in the area would trigger a consultation with the Army Corps of Engineers over these wetlands.
76. At the present time, one significant residential development proposal is pending including 765 new residences on approximately 130 acres of the unit. This proposed development conforms to the general outline of the “Communications Hill Specific Plan,” and would account for between 19% and 30% of the residential development on the hill authorized in the plan.¹² The Communications Hill Specific Plan SEIR indicates that this development will involve a small amount of wetland modification and thus, involve permitting through the Army Corps of Engineers. Confirmed presence of the federally endangered Santa Clara Valley dudleya on the site, and potential for effects on the federally endangered Metcalf Canyon jewelflower, would trigger consultation by the Service and the Corps. Under the proposed designation of the Communications Hill Unit as critical habitat for the butterfly, the Federal nexus created by the Corps wetlands permit would add consultation by the Service on butterfly critical habitat.
77. In addition to consulting on butterfly critical habitat, other listed species within the unit would be affected by proposed developments, as is the case for the specific plan development just described. Due to the presence of other listed species within the unit, it is likely that any future consultations within the unit would include, and perhaps be primarily triggered by, other listed species in the area, but also include consulting on butterfly critical habitat concerns. The project SEIR found the proposed development would have a significant impact on the dudleya requiring on-site mitigation efforts.
78. Lacking specific proposals as to the size and design of future development proposals for Communications Hill, the number of possible future consultations involving butterfly critical habitat within this unit is estimated by relying on the relative scope of the current development proposal (765

¹⁰ “Communications Hill Specific Plan” was prepared for the City of San Jose by Soloman, Inc. in April of 1992.

¹¹ Personal communication, San Jose Planning Department. Nov 14, 2000.

¹² A copy of the SEIR specific to the proposed Communications Hill development proposal can be accessed through the City of San Jose website at <http://www.ci.san-jose.ca.us/planning/sjplan/eir/Commhill/summary.html>.

residences) and the range of full development estimates provided in the "Communications Hill Specific Plan" (2,500 to 4,000 residences). It is estimated that between 3 and 5 developments of the size of the one currently proposed in the unit would fully develop the unit to the specifications of the City of San Jose plan. Therefore, assuming that all of these developments would trigger consultations, it is estimated that between 3 and 5 consultations including butterfly critical habitat could occur related to development on the Communications Hill Unit.

79. There are two factors that would limit the potential costs associated with both consultations on butterfly critical habitat and project modifications associated with those consultations: 1. The presence of other listed species with similar habitat associations within the unit, and 2. the provision within the Communications Hill Specific Plan for preservation of roughly 45% of Communications Hill as undeveloped open space. The presence of other listed species within the unit (specifically the dudleya) would likely trigger consultations with the Service irrespective of the designation of critical habitat for the butterfly. The addition of butterfly critical habitat concerns to any future consultations on development within the unit, while adding a level of complexity to any future consultations, would not likely in itself trigger new consultations. Since the Communications Hill Specific Plan calls for preservation of a significant portion of the unit (primarily steep hillsides) as open space, it is possible that this action could, at least in part, satisfy any possible future project modifications or mitigation measures suggested by the Service as a result of consultation including butterfly critical habitat. In addition, other conservation measures such as off-site habitat preservation considered necessary for endangered plants could simultaneously benefit bay checkerspot. Inclusion of butterfly critical habitat concerns within future section 7 consultations concerning the Communications Hill Unit would, even considering these mitigating factors, likely result in additional costs to the private parties and the Federal agencies involved.
80. The economic costs of performing a Section 7 consultation can vary widely depending on the type and scope of a project and the level of detail required in the consultation. Some consultations can be completed informally with one meeting and no project modifications. Other consultations can last 18 months and require the preparation of a Biological Opinion. In these processes, economic costs are incurred by the Service, the consulting Federal agency, and (in the case of the Communications Hill Unit) the applicant. Based on historical consultation information provided by the Service, these costs to all involved parties are estimated to range between \$1,000 and \$10,000 per consultation. In a case such as the currently proposed development within the Communications Hill Unit, where multiple listed species, and significant land modification are proposed, it is reasonable to expect that costs would be in the upper end of the estimated range.
81. The economic costs of project modifications (like those of the actual consultation process) also vary widely. Possible project modifications may include, among other things, avoidance of sensitive habitat, on-site or off-site habitat preservation, and habitat restoration. Recently a formal consultation which included the bay checkerspot butterfly was completed for a proposed development

(Ranch on Silver Creek Development) within the city of San Jose.¹³ The conservation measures listed in this Biological Opinion provide a timely and relevant example of the potential costs associated with project modifications resulting from butterfly critical habitat concerns. The Ranch on Silver Creek Biological Opinion found that approximately 340 acres of habitat of varying quality, and 200 acres of habitat with moderate to good potential for the butterfly, the dudleya, and the jewelflower, would be lost due to the development. To minimize the impacts on the butterfly, the applicant proposed to preserve and restore, to the extent necessary, 190 acres on-site, and manage this land to enhance bay checkerspot populations. Additionally, the applicant proposed to take over management or ownership of 2 adjacent butterfly/open space preserves (totaling 210 acres). Finally, the applicant also proposed acquiring a permanent conservation easement acceptable to the Service (or fee title) to 75 acres of off-site conservation lands supporting bay checkerspot and dudleya. It should be noted that not all of the agreed upon project modifications in the Ranch on Silver Creek BO were solely due to butterfly concerns. This consultation also included one other threatened, and two endangered species. The proposed actions listed for the benefit of the butterfly in the BO also at times benefitted other species such as the dudleya.

82. In applying the butterfly conservation measures agreed to in the Ranch on Silver Creek Biological Opinion (BO) to the Communications Hill Unit, the most likely categories of modification costs would be preservation and restoration of on-site habitat, and possible acquisition and preservation of off-site butterfly and dudleya habitat. The Ranch on Silver Creek BO specified that approximately 41% of the total development site be preserved as open space habitat. This percentage is similar to the portion of Communications Hill planned for open space slopes in the Communications Hill Specific Plan¹⁴ (In the Communications Hill Plan, approximately 46% of the available area is slated to be left as undeveloped slopes). The extent to which these planned open spaces would satisfy possible concerns of the Service over loss of other habitat within the unit is unknown at this time. Regarding off-site acquisition and preservation of butterfly and dudleya habitat, the Silver Creek BO specified that a performance bond of \$750,000 be posted with the Service to secure the applicant's obligation to acquire 75 acres of off-site conservation land. Conversations with representatives of William Lyon Homes, Inc., the applicant in the Silver Creek BO, indicate that the required bond amount is approximately 50% of the expected actual cost of acquiring the 75 acres of habitat¹⁵. Therefore, based on the example of the Ranch on Silver Creek BO, the current cost of off-site butterfly/dudleya habitat for project mitigation is estimated at \$20,000 per acre. Overall, the Silver Creek BO specified the off-site acquisition and/or preservation of

¹³ USFWS Biological Opinion on "Formal Consultation on Nationwide Permit Modification for the Ranch on Silver Creek (Cerro Plata) Development, San Jose, Santa Clara County, California." October 12, 2000

¹⁴ Communications Hill Specific Plan, p. 57.

¹⁵ Personal communication, William Lyon Homes, Inc. January 2, 2001.

between 22% and 85% of the amount of habitat developed on-site.¹⁶ Using these ratios, a similar agreement based on the full-development plan for Communications Hill (prepared by the City of San Jose) would require the acquisition of between 48 and 187 acres of suitable off-site habitat to offset on-site habitat loss. Using the current estimated cost of butterfly and dudleya habitat from the William Lyon Homes, Inc. experience as a benchmark, such an acquisition requirement could cost a developer of the Communication Hill Unit between approximately \$960,000 and \$3,740,000.

83. The details of each proposed development and the biological characteristics of the land upon which it occurs are unique. Therefore, the application of project modifications from one development area to another, even using similar areas and species of concern, is very speculative. That noted, using the example of the Biological Opinion issued on the proposed Ranch on Silver Creek development, full development of the Communications Hill Unit to the specifications of the "Communications Hill Specific Plan" could lead to up to \$50,000 in consultation costs (5 development proposals times a maximum of \$10,000 per consultation) and up to approximately \$3,740,000 in off-site habitat acquisition costs (as estimated by the relative size of the associated performance bonds). These estimates would be overstated to the degree that any consultations and project modifications were due to other listed species found on the hill. Additionally, these estimates might be understated to the extent that it would be necessary to preserve open space in addition to that specified in the Communications Hill Specific Plan within the unit.
84. **Unit 7. Kalana Hills Unit** The Kalana Hills unit in Santa Clara County is located on the southwest side of the Santa Clara Valley between Laguna Avenue and San Bruno Avenue. At least one population of the bay checkerspot has been documented on one or all of these outcrops in recent surveys. This entire unit is privately held. Currently, the primary activity on land in this unit is ranching. Portions of this unit lie on steep hillsides and development is restricted by existing slope ordinances and the San Jose urban growth boundary. The Kalana Hills Unit is currently occupied by the butterfly, and the presence of the species within this unit indicates that any consultations pursuant to section 7 of the Act already would be required because of the listing of the species. Additionally, the Service already considers habitat issues in its listing consultations. No specific impacts associated with critical habitat designation are expected within this unit.
85. **Unit 8. Kirby Unit** The Kirby critical habitat unit includes lies along the southern portion of "Coyote Ridge" in Santa Clara County. It contains the Kirby area for the bay checkerspot discussed in the species' Recovery Plan (Service 1998). The Kirby critical habitat unit regularly supports one of the largest populations of the bay checkerspot, and is considered one of the centers of the species' Santa Clara County metapopulation.

¹⁶ This range is generated by either including or excluding management of the existing 2 contiguous open space preserves (totaling 210 acres) with the 75 acre off-site habitat acquisition, and comparting this to the 334 acres of residential and golf course development proposed at the Silver Creek site.

86. There is a wide diversity of land ownership and management within the Kirby Unit. The unit includes lands within the City of San Jose, and the City of Morgan Hill, as well as unincorporated lands in Santa Clara County. Public lands within the Kirby Unit include the Santa Clara County Field Sports Park, and portions of the Santa Clara County Motorcycle Park. Additionally, portions of Anderson Lake County Park, Coyote Creek Park, and lands of the Santa Clara Valley Water District are located within this unit. Large private landowners within this unit include United Technologies, Inc (UT). The lands owned by UT within the Kirby Unit are not currently used for facilities or testing, but rather are leased for grazing. A second major private landowner in the unit is Castle and Cooke California, Inc. The holdings of this corporation within the unit are all currently in open space. Castle and Cooke also own land in the unit currently used as a landfill, and leased by Waste Management, Inc. A 250 acre reserve for conservation of the bay checkerspot also falls within this unit (leased by Waste Management, Inc. on behalf of the Kirby Conservation Trust). This area has been a research site for Stanford University butterfly researchers for over a decade.
87. Most of the lands within the Kirby Unit are outside of current urban growth boundaries, and potential development could be limited by existing viewshed and slope ordinances¹⁷. No specific proposed projects with Federal nexuses are currently known of within this unit. As an area currently occupied by a significant population of butterflies, any future consultations pursuant to section 7 of the Act already would be required because of the listing of the species. Additionally, the Service already considers habitat issues in its listing consultations. No specific impacts associated with critical habitat designation are expected within this unit.
88. **Unit 9. Morgan Hill Unit** The Morgan Hill unit in Santa Clara County is northwest of the City of Morgan Hill in Santa Clara County. The unit has been documented to be occupied by the butterfly in the past, as well as in more recent surveys in the past 2 to 3 years.
89. The majority of the Morgan Hill Unit is privately held ranching property. One small city park (Murphy Springs Park) is also within the proposed unit. A large portion of the privately held land is owned by one landowner. This hilly unit is located in an area of high land values, and would be subject to future development pressures. Development potential will be limited somewhat by restrictions in the area on development placed by the majority of the proposed unit lying outside of the City of Morgan Hill's Urban Growth Boundary. The presence of the species within this unit indicates that any consultations pursuant to section 7 of the Act already would be required because of the listing of the species. Additionally, the Service already considers habitat issues in its listing consultations. No specific impacts associated with critical habitat designation are expected within this unit.
90. **Unit 10. Metcalf Unit** This unit is located in Santa Clara County, east of Highway 101, south of Silver Creek Valley Road, north of Metcalf Canyon, and west of Silver Creek. The unit contains the Metcalf population area for the bay checkerspot, one of the four largest habitat areas and three

¹⁷ Personal communication, Biologist, USFWS, Sacramento, CA.

largest current population centers for the butterfly (Service 1998).

91. The proposed Metcalf Unit is comprised of mostly private lands, with small parcels of public land (portions of the Santa Clara County Motorcycle Park, and Coyote Creek Park, and well as lands of the Santa Clara Valley Water District) also within the unit boundaries. The primary use of the majority of the lands within this unit is for open space and grazing¹⁸. Future development potential within the unit is limited by the units' location outside of existing urban growth boundaries, and additionally by existing viewshed and slope restrictions on development. The presence of the species within this unit indicates that any consultations pursuant to section 7 of the Act already would be required because of the listing of the species. Additionally, the Service already considers habitat issues in its listing consultations. No specific impacts associated with critical habitat designation are expected within this unit.
92. **Unit 11. San Felipe Unit** This unit in Santa Clara County, southwest of San Felipe Road and north of Metcalf Road, is primarily on private lands in unincorporated county lands, but also within San Jose city limits. The unit contains the San Felipe population area for the bay checkerspot, one of the four largest habitat areas and three largest current population centers for the butterfly (Service 1998).
93. Like the Metcalf Unit, which it borders, the San Felipe Unit is currently used for open space and grazing. This unit also lies outside the current urban growth boundary, and portions of the unit may be subject to viewshed and slope restrictions on development. The presence of the species within this unit indicates that any consultations pursuant to section 7 of the Act already would be required because of the listing of the species. Additionally, the Service already considers habitat issues in its listing consultations. No specific impacts associated with critical habitat designation are expected within this unit.
94. **Unit 12. Silver Creek Unit** The Silver Creek unit is located primarily within the limits of the City of San Jose, but with some area on private lands in unincorporated Santa Clara County. The unit includes the Silver Creek Hills population area for the bay checkerspot (Service 1998). Small areas of public lands in this unit include portions of Coyote Creek Park and Silver Creek Linear Park. A private bay checkerspot preserve dedicated by Shea Homes, the Silver Creek Valley Country Club Butterfly Habitat Reserve, also lies within this unit.
95. The Silver Creek Unit is approximately 95% privately held land, and also includes portions of Coyote Creek Park, and Silver Creek Linear Park. Portions of the unit (approximately 20%) are currently protected from development and are grazed as part of their management. There is ongoing development within this unit that has recently triggered consultations under the listing provisions of the Act. The Service has recently completed a consultation with the Army Corps of Engineers regarding the proposed "Ranch at Silver Creek" development. This consultation was undertaken

¹⁸ Personal Communication, Biologist, USFWS, Sacramento Field Office.

under the listing provisions of the Act, and was concluded with a finding of “no jeopardy.” It is possible that future development proposals within this unit would, like the “Ranch at Silver Creek” proposal, require Corps Permits, and therefore trigger consultations with the Service. The presence of the species within this unit, however, indicates that any consultations pursuant to section 7 of the Act already would be required because of the listing of the species. Additionally, the Service already considers habitat issues in its listing consultations. Therefore, no specific impacts associated with critical habitat designation are expected within this unit.

96. **Unit 13. San Vicente-Calero Unit** The San Vicente-Calero unit lies within and to the west of Calero County Park, Santa Clara County. This area supports a known population of the bay checkerspot in a large area of good-quality habitat. Portions of the unit outside of the county park lie within the boundaries of the City of San Jose. Service personnel estimate that this proposed unit is comprised of approximately 55% private land and 45% public park land. Portions of this land are currently managed as open space and ranching lands. Additionally, a Pacific Gas and Electric transmission corridor also runs through this unit.
97. At present, there are no known development or management proposals which would necessitate the initiation of section 7 consultations within this unit. And in any case, the presence of the species within this unit indicates that any consultations pursuant to section 7 of the Act already would be required because of the listing of the species. Additionally, the Service already considers habitat issues in its listing consultations. Therefore, no specific impacts associated with critical habitat designation are expected within this unit.
98. **Unit 14. Santa Teresa Hills Unit** The Santa Teresa Hills unit is located in Santa Clara County. Portions of the Santa Teresa Hills are known to support the butterfly now, and have supported the species in the past, but no current comprehensive survey of the butterfly in the area is available. A primary large landowner within this unit is IBM. This corporation operates one facility within the proposed critical habitat unit. At present, there are no known proposals for development within the Santa Teresa Hills Unit that would require section 7 consultations. However, the presence of the species within this unit in the past indicates that any future consultations pursuant to section 7 of the Act already would be required because of the listing of the species. Additionally, the Service already considers habitat issues in its listing consultations. Therefore, no specific impacts associated with critical habitat designation are expected within this unit.
99. **Unit 15. Tulare Hill Corridor Unit** The Tulare Hill Corridor unit in Santa Clara County, connects the Coyote Ridge (Kirby and Metcalf, and through them, San Felipe and Silver Creek) and Santa Teresa units. Extensive habitat on the hill is currently occupied by the bay checkerspot, and is essential both as a population center and for dispersal across the valley.
100. The majority of the proposed Tulare Hill Unit is privately owned and is divided into 3 or 4 major parcels. Public lands within the unit include parts of Coyote Creek Park, Metcalf Park, and Santa Teresa County Park. About half of the unit lies within the City of San Jose, with the rest on

private lands within unincorporated Santa Clara County. Much of the hill is currently utilized for grazing. Pacific Gas and Electric owns a portion of the unit and maintains major transmission lines through the unit. There is presently a short-term HCP in effect within this unit for maintenance work on the PG&E transmission lines. This HCP is scheduled to expire in November 2001. The Service has reviewed the remaining work to be done under this HCP and has determined that it will not cause destruction or adverse modification of the proposed critical habitat: therefore no formal conference on the remaining work will be necessary.

101. US Highway 101 borders the proposed Tulare Hill Corridor Unit on its northeast side. Any future proposals to widen this highway might trigger a consultation involving the butterfly. However, the presence of the species within this unit indicates that any consultations pursuant to section 7 of the Act already would be required because of the listing of the species. Additionally, the Service already considers habitat issues in its listing consultations. Therefore, no specific impacts associated with critical habitat designation are expected within this unit.
102. While the number of historical consultations over the 13 years since the listing of the butterfly has been limited, it is possible that the designation of critical habitat for the species could lead to heightened regulatory review of future development within butterfly critical habitat by agencies other than the Service, such as the State of California under CEQA. Such increased regulatory review by an outside agency is an effect independent of the Service and its actions. Such an impact would be more attributable to recognition by The State of California that evaluation of impacts on a declining species and its habitat is important, rather than any regulatory burden imposed by the critical habitat designation.

Summary of Economic Impacts

103. Exhibit 3-3 below summarizes potential economic impacts of the proposed designation. First, it indicates Federal nexuses that exist or could exist in the future in proposed critical habitat for the bay checkerspot butterfly. In addition, the exhibit indicates the likelihood that section 7 consultations with the Service would occur as a result of the proposed designation for the butterfly. Finally, Exhibit 3-3 notes both the estimated number of future consultations on butterfly critical habitat and the expected costs associated with any required project modifications or other impacts (e.g., project delays) that would occur as a result of consultations with the Service.
104. There is estimated to be a moderate to high likelihood that the Service will need to undertake internal consultations associated with habitat restoration or species reintroduction in two of the proposed critical habitat units. These types of internal consultations represent no significant cost to the Service. It is also likely that future residential development within the proposed Communication Hill unit will require consultations between the Army Corps of Engineers and the Service for developments that involve wetlands. Since wetlands within this unit are sparse, and actual proposals and plans for future residential development are unknown, it is very difficult to estimate the number

of critical habitat-triggered future consultations that will be associated with this development. It is likely that most, if not all, future consultations within this unit would also encompass one or more of the other listed species found on the hill. It is estimated that between 3 and 5 future consultations on butterfly critical habitat will be required in this unit. It is further estimated that consultation costs associated with the Communications Hill Unit could range up to \$50,000 for full development of the unit, and that mitigation costs could range from \$960,000 to \$3,740,000.

Exhibit 3-3 SUMMARY OF POTENTIAL CONSULTATIONS AND IMPACTS WITHIN PROPOSED CRITICAL HABITAT FOR THE BAY CHECKERSPOT BUTTERFLY				
Land Owner	Reasonably Foreseeable Activities and Land Uses within Proposed Critical Habitat	Likelihood of New Consultations	Estimated Number of Potential New or Reinitiated Consultations	Expected Costs of Project Modifications
Stanford University	Reintroduction of the butterfly within the Jasper Ridge Preserve	Moderate to High	1	none to negligible
State & San Mateo County	Habitat restoration and reintroduction of butterfly within the San Bruno Mtn. unit	Moderate to High	1	none to negligible
Private	Residential development within existing wetland areas of the Communication Hill unit	Moderate to High	3 to 5	Up to \$50,000 in consultation costs and between \$960,000 and \$3,740,000 in mitigation costs

ADDITIONAL IMPACTS DUE TO PROPOSED CRITICAL HABITAT

105. This section considers additional economic and socioeconomic impacts of designating critical habitat for the butterfly. Specifically, this section addresses:

- C Potential impacts to small businesses;
- C Potential impacts associated with project delays; and

- C Potential impacts on property values attributable to public perception and/or uncertainty about proposed critical habitat.

Potential Impacts to Small Businesses

106. Under the Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996) whenever a Federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions).¹⁹ However, no regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities.
107. Because proposed critical habitat for the butterfly consists primarily of hillsides and open grasslands, the existing small businesses likely to be affected by the proposed designation in this instance are those involved in livestock grazing. In the case of the butterfly, however, grazing is often compatible and even desirable for the maintenance of the habitat. For example, the Ranch on Silver Creek BO called for increasing grazing on certain butterfly habitat areas in order to maintain desirable habitat conditions. It is unlikely, therefore, that critical habitat designation for the butterfly will negatively impact existing grazing operators. Additionally, with the exception of the three unoccupied units, any potential butterfly related impacts would be attributable to the listing status of the butterfly, and not to the designation of critical habitat.

Potential Impacts Associated with Project Delays and Property Values

108. The incremental effect of the proposed designation of critical habitat on project delays is dependent on the specific nature of the project in question. Based on the preceding analysis, the projects that are expected to undergo section 7 consultations would likely be relatively large residential development projects that would require several other permits and licenses. These additional requirements include CEQA and approvals by local zoning boards and city councils. Often, a section 7 consultation can be held at the same time as these other permitting processes. If the consultation is completed before the other processes are completed, any project delays would not be attributed to the consultation with the Service.
109. On the other hand, some project delays may be attributable to section 7 consultations. When a project has all of the other necessary permits and licenses, or it is waiting for the completion of a

¹⁹ 5 U.S.C. 601 et.seq.

consultation to proceed with other permitting processes, the section 7 consultation causes project delays. The Service indicates that formal section 7 consultations are supposed to last 135 days or less, but that occasionally the nature of the project requires consultations to last a year or more. These project delays represent potential impacts for property owners and developers.

110. In certain unoccupied units (specifically, the Communications Hill Unit) the proposed critical habitat designation may require section 7 consultations beyond those required under the listing of the species. In this case, these incremental consultations have the potential to create additional project delays for land owners and managers.
111. The proposed critical habitat designation may affect private property values due to public perceptions about limitations on future development. In the case of the majority of the lands designated as butterfly critical habitat (the 12 proposed units that are currently occupied by the butterfly) this perception would be incorrect. For the currently occupied units, designation of critical habitat would impose no additional development constraints above those associated with the presence of the species. For the one unoccupied unit planned for future development (the Communications Hill Unit), designation of critical habitat could impose additional costs of development, and thus reduce current undeveloped property values to an unknown degree.

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